



# CALIFORNIA ENERGY COMMISSION ENERGY PARTNERSHIPS

## CALIFORNIA ENERGY COMMISSION

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## CITY OF SAN BERNARDINO

How can a city cut its annual energy bills by about 20 percent, modernize its facilities and solve deferred maintenance problems while still being environmentally responsible and maintaining comfort and indoor air quality? The City of San Bernardino found the answer in energy efficiency. The City's projects that were installed between 1995 and 1996 have saved them nearly \$200,000 per year.

The City used a combination of methods to meet its goals. Southern California Edison's Envest program identified about \$1 million in energy saving projects for City Hall, Carousel Mall, Feldheim Library and the City Hall Parking Structure. The California Energy Commission's Energy Partnership Program identified nearly \$40,000 in energy projects in the Central Garage, Main Fire Station, Delmann Heights Recreation Center, Hernandez Recreation Center and the Fifth Street Senior Center. The City's facility management staff identified projects at the Animal Shelter as well as ways to address the computer and printer loads at City Hall. Funding for all the projects was provided by a combination of a 10-year lease and internal moneys.

Actual utility bill comparisons of the pre- and post-energy project installations confirm that the City will recoup all project costs from the energy savings in about five years. The savings are more than sufficient to make the lease payments and have produced a positive cash flow for the City.

### PROJECTS IMPLEMENTED

The City focused on improving the efficiency of its facilities in the following ways:

- Retrofitting fluorescent fixtures with T-8 lamps and electronic ballasts in all buildings
- Replacing fluorescent with metal halide fixtures in the Central Garage
- Installing occupancy sensors in storage rooms and offices
- Replacing standard incandescent lamps with compact fluorescent lamps
- Replacing incandescent exit signs with new light emitting diode signs
- Replacing the existing chiller at City Hall with chillers that are 24 percent more efficient and use an environmentally acceptable refrigerant
- Installing an energy management system at City Hall
- Installing a new chilled-water system, including pumps with variable frequency drives (VFD), and a new cooling tower with VFD to control fan speed at City Hall
- Converting the air-distribution system to variable air volume at City Hall
- Installing devices to automatically shut off idle printers at City Hall.



*New high efficiency screw chillers have substantially reduced cooling costs for City Hall.*

### ENERGY SAVINGS

City staff tracked energy use in each building using a commercial energy accounting software program prior to and after the projects were installed. The utility bills confirm that the City has saved almost \$200,000 annually. The reduction in annual energy bills ranged from 9 to 14 percent for buildings with lighting only projects, and about 38 percent the for

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City Hall, which had both lighting and heating, ventilating and air conditioning (HVAC) projects. The following graph shows the difference in monthly electricity cost for all buildings brought about by the energy efficiency project installations. When all projects are considered, the City will recoup its total project cost in about five years.

James Sharer, facility manager for the City states: "My department is responsible for billing other departments for the electricity they consume. I have tracked the bills and have seen the actual savings in each of our buildings. The City is in control of its future energy use."

### IMPROVED COMFORT AND OTHER BENEFITS

The projects improved comfort and lighting for city employees and the public. Indoor air quality problems at City Hall were resolved. The new systems are under equipment warranties and will not need servicing or replacement for many years. This means reduced time and cost for maintenance. Because of the success of these projects, the City plans to install energy efficient lighting and HVAC equipment in other city facilities.

"San Bernardino offers an excellent example of the benefits of energy efficiency and how multiple program approaches can work together to meet the City's challenges," stated Commissioner Jananne Sharpless of the Energy Commission.

Due to its strong commitment to reduce energy in its facilities, the City was awarded the Energy Commission's Outstanding Energy Achievement in Local Government Award in 1996.

### PERSPECTIVES

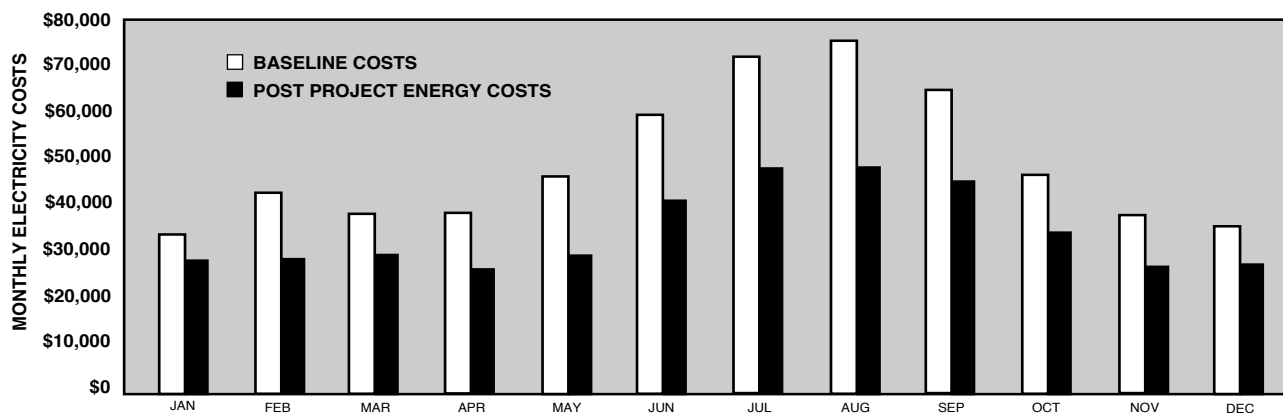
James Sharer, facility manager, offers these suggestions for those wanting to install energy efficiency:

- Obtain management "buy-in" early
- Get input from people who will operate the new equipment
- Take a comprehensive look at your facility—from lighting to HVAC
- Use a process that puts you in the driver's seat—you make the equipment decisions and ensure that vendors follow through on projects.



*Direct digital control-energy management system has minimized unnecessary HVAC operations at City Hall.*

**COMPARISON OF ELECTRICITY COSTS:  
BEFORE AND AFTER ENERGY EFFICIENCY PROJECT INSTALLATION IN ALL BUILDINGS**



### FOR MORE INFORMATION

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